

**TEACHING STRATEGIES FOR TECHNOLOGY
IN THE ELEMENTARY CLASSROOM**

MASTER'S PROJECT

**Submitted to the School of Education,
University of Dayton, in Partial Fulfillment
of the Requirements for the Degree
Master of Science in Education**

by

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April 1996**

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Approved by:

Official Advisor

ACKNOWLEDGMENTS

We would like to thank Dr. Calvin Dill from the University of Dayton for his guidance during the writing of this handbook. We extend our thanks to the exceptional staff at Wyandot Run Elementary for their support and encouragement.

DEDICATION

This handbook is dedicated to our families, friends and colleagues in the profession of teaching children. We hope this handbook will be a helpful resource to assist teachers in the classroom.

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ABSTRACT

BRUNEY, KATHRYN V., CIOCA, JULIE C., LAAKSONEN, DEBRA A.
TEACHING STRATEGIES FOR TECHNOLOGY IN THE ELEMENTARY CLASSROOM
(PP. 52), APRIL 1996

Faculty Advisor: Calvin F. Dill, Ph. D.

PROBLEM. Teaching strategies for technology in the elementary classroom is the key component in preparing our students, teachers, parents, community, and administrators for the 21st century. This handbook is to be used as a guide for elementary schools who need help on transforming a school to a computer literate environment. It also serves as a resource for teachers on how and where to get adequate training for implementing technology in the classroom. Hints on selecting the appropriate software for your elementary classroom are included as well.

PROCEDURE. Literature relating to the topic of technology in the elementary classroom were sought out. Research was done on how to select the appropriate software and how to go about evaluating it. Colleges and universities around central Ohio were contacted to see if they offered any classes or workshops to help train teachers in the area of technology. Manufacturers were contacted to obtain prices and descriptions of software available for Macintosh computers. By simply using and experimenting with various software, different extensions of curriculum were discovered.

FINDINGS. There was a significant amount of information on teaching strategies for technology in the elementary classroom. The information obtained through all the research has been put together in a very easy to use reference and or guide to help you and/or your elementary school make the transition or improve to a technology literate classroom.

CONCLUSION AND RECOMMENDATIONS. The importance of computer technology classroom is growing. There are many appropriate programs, software, workshops, seminars, classes, literature, available to educators. Start from the basics by educating parents, community, administrators, and teachers. There are ways of funding through partnerships and grants. Once you have the access to computer technology, you can tie it into your curriculum and make it very effective. It is important, for you, the classroom teacher to stay on top of what is happening as best as you can. Software is constantly being updated and expanded as to what it can do and/or offer. Many addresses, phone numbers, and quick reference materials have been included to help answer some questions you or your school may have. Using the correct teaching strategies for technology in the elementary classroom will not only make education fun, but it will adequately prepare your students for the 21st century.

Teaching Strategies for Technology in the Elementary Classroom

By: Kathryn Bruney, Julie Cioca, Debra Laaksonen

INTRODUCTION

This study will examine the importance of computer technology in the kindergarten through fifth grade classrooms. There are advantages to using technology in an elementary classroom as well as appropriate software. We will be exploring a variety of ways classroom teachers can incorporate technology into all areas of the curriculum.

There is a strong need for reforming the American educational system and technology is the key component in preparing our students for the 21st century (Bruder, Bruchsbaum, Hill, Orlando, 1992). Educating the parents, community, administrators and teachers about the importance of and need for technology is essential for the successful implementation of technology strategies in our schools. In order to better prepare our students for our computer literate society, we must first prepare our teachers. Research supports that teacher training through in-services and workshops will better enable teachers to effectively teach students.

This handbook will include examples of appropriate software and software that is inappropriate for use in the elementary school. It will also explore the impact of the use of technology with children with special needs. It will address the issue of technology in an inclusion situation (Armstrong, 1995).

PROBLEM STATEMENT

According to Tucker, there is mounting evidence that American school children are not academically competitive with their global counterparts. The desire to improve students' academic opportunity coupled with current trends in educational reform has brought the role of technology in the classroom to the forefront (Tucker, 1993). Technology leads educators to essential components such as active learning, collaboration, real-world project approaches, and an emphasis on inquiry skills (Soloman, 1992). Global networking enhances language skills, serves as a history lesson, and redefines attitudes toward society, government and culture (Shuffleton, 1995).

1. What is necessary to transform an elementary school into a computer literate environment?
 - A. Funding through partnerships, grants and fund raising
 - B. Obtain community, administrative and teacher support
 - C. Paradigm shift
2. How do teachers receive adequate training that will assist them in implementing technology in the classroom?
 - A. Teacher inservices and professional workshops
 - B. Collegial support and cooperation

- 3. How do teachers choose and integrate appropriate software?**
 - A. Increase knowledge of software available**
 - B. Teachers need to become a facilitator in the classroom**
 - C. Must choose software that interests and intrigues the students**

- 4. What role should technology play in assessment?**
 - A. Video portfolios**
 - B. Simulations**
 - C. Record thinking processes**
 - D. Use of computer-generated writing, graphing, drawings, multimedia presentations to communicate what is known**

LIMITATIONS

According to Rutherford and Grana, there are certain limitations that can prevent teachers and other staff from adapting to and learning from technology. There are many fears that hinder professional growth: fear of change, time commitment, and rejection; fear of appearing incompetent, the fear of not knowing where to start, and the fear of technolingo and techno failure (Rutherford and Grana, 1995). Another limitation is that prices vary according to manufacturers. Software and hardware are constantly being upgraded to maintain current status.

DEFINITION OF TERMS

1. **Technology**- The application of science, especially to industrial or commercial objectives. The scientific method and material used to achieve a commercial or industrial objective (American Heritage Dictionary).
2. **Software**- The programs, routines, and symbolic languages that control the functioning of the hardware and direct its operation (American Heritage Dictionary).
3. **Networking**- A system of computers interconnected by telephone wires or other means in order to share information. Also called net1 (American Heritage Dictionary).
4. **Scanner**-To move a finely focused beam of light or electrons in a systematic pattern over (a surface) in order to reproduce or sense and subsequently transmit an image(American Heritage Dictionary).
5. **CD Rom-CD-ROM**- A compact disk that functions as a read-only memory (American Heritage Dictionary).
6. **E-Mail**- The use of a network to send and receive messages. Also called e-mail. Linked by high-speed data connections that cross national boundaries, electronic mail lets you compose messages and transmit them in seconds to one or more recipients in your office, to headquarters in another state, or to a friend in another country. The Internet, an extensive system of computer linkages, is making it easy to send mail worldwide (Computer Terminology- Internet).
7. **Online**- Under the control of a central computer, as in a manufacturing process or an experiment. Connected to a computer network. Accessible via a computer or computer network (American Heritage Dictionary).

8. **Computerize**- To furnish with a computer or computer system. To enter, process, or store (information) in a computer or system of computers (American Heritage Dictionary).
9. **Keyboard**- A set of keys, as on a computer terminal or word processor (American Heritage Dictionary).
10. **Internet**- A system of linked computer networks. The Internet is a way of connecting existing computer networks that greatly extends the reach of each participating system. The Internet allows virtually any system to link to it via an electronic gateway. I With more than 2 million host computers serving an estimated 20 million users, the Internet is exploding at the rate of a million new users each month (Computer terminology-Internet).
11. **Communications software**-Programs that allow computers to communicate through a MODEM. Some communications programs are capable of automatic telecommunications, such as auto-answering, auto-dialing, and even dialing another computer at a preset time to establish communication and send and receive information. Some programs allow operation of an unattended remote computer - accessing disk files, operating peripherals, and so forth (Computer Terminology-Internet).
12. **Modem**- An acronym for MODULATOR DEMODULATOR, a device that translates digital pulses from a computer into analog signals for telephone transmission, and analog signals from the telephone into digital pulses the computer can understand. The modem provides communication capabilities between computer equipment over common telephone facilities (Computer terminology-Internet).

CHAPTER II

REVIEW OF RELATED LITERATURE

This review of literature is divided into four major sections: Section one investigates how an elementary school becomes a computer literate environment. Section two examines the need for adequate training for administrators, teachers and staff for successful implementation of technology. Section three explores a variety of appropriate software available for use in elementary schools; and the final section, section four, defines technology's role in assessment.

COMPUTERIZING SCHOOLS

According to Bruder, Buchsbaum, Hill, and Orlando, there are grave challenges that educators face everyday. The problem is that they are facing such problems without adequate tools. The need to reform American schools cannot be addressed without talking about technology. The technological tools of the 21st century must be coupled with new visions about the work of teachers and students. We must prepare our students to live happily and productively in a century whose demands we can only imagine (Bruder, Buchsbaum, Hill, Orlando, 1992).

In Crader's article, there are numerous sources for funding educational technology. The top two sources of funding are through federal and state funds. Others areas include business, private foundations, and parent-teacher associations (Crader's, 1991).

Shirer suggests four ways a school system can stretch funds for technology:

1. **Plan carefully** - plan at least five years ahead, make the best use of existing equipment, and be sure what you buy can be used for a variety of purposes.
2. **Budget annually** - set aside funds money for technology each year.
3. **Act as a team** - encourage administrators, teachers and community to work collaboratively to allocate necessary funds.
4. **Create funding** - restructure existing budgets to allow for funds to be used for technology (Shirer, 1993).

The use of computers in the classroom can have a significant impact on the amount of knowledge students can learn, but if the schools don't get away from the traditional settings (of pencil, paper, and standardized tests) computers don't stand a chance to make a difference. Computers have numerous opportunities to influence learning if used in the learning process (Tierney, 1992).

It is not an easy task to change the techniques developed centuries ago by Socrates, who used fossils to scratch on slate. Schools in today's society need to ask themselves these questions:

1. What business are we in?
2. What has to be done to make it work?
3. What changes need to be done to allow us to be doing the things we need to do?
4. What technologies will help us obtain what needs to be done?

Technology has been struggling in many systems, because it is a threat to traditional styles of teaching (Holden, 1994).

Money for technology comes in many shapes and forms. Whatever the case, the effect is the same: the funding is short lived, but the benefits are felt far into the future (Solomon, 1993).

TEACHER TRAINING

Schools need to make a commitment to have every staff member engage in professional development as an on going activity. Accessibility is the key to continuous improvement. When teachers have computers in their home, it allows them to obtain software for review and exploration. It needs to become a normal element of the everyday life of a teacher, so they are on the forefront of those in our society (Friedman, 1994).

According to Flaherty, a problem with staff development is that most inservices provide basic introductory information about computers, rather than specific application of software. He feels that there is a great need to increase the amount of time and money school systems allot to professional development in the technology area (Flaherty, 1993). Collegial support and cooperation is necessary and beneficial and it can be achieved by moving from a departmental staff development to a whole systems approach. Staff members with computer knowledge must take the initiative to share ideas, frustrations, and concerns with colleagues.

Teachers need total immersion in educational technology in order to become facilitators and guides in the classroom (Osborn, 1994).

Integrating technology into the schools to empower teaching and learning remains a major goal for almost all school districts. School districts need to provide incentives for personal growth such as release time, changes in job titles, and conference attendance - as well as technical support from the district technology personnel to nurture growth within the district (Stolper, 1993).

THE USE OF COMPUTER SOFTWARE IN ELEMENTARY CLASSROOMS

Teachers in a computer literate school system need to take the role of facilitator in the classroom. In order to do so, teachers and administrators need to become familiar with the software that is available to them. They also have to decide if the software is appropriate or inappropriate for classroom use. In order to achieve the above, teachers and administrators need access to software, and the time to experience programs (Littauer, 1994).

Effective use of software is a matter of organization. Littauer believes that teachers should consider seven questions when deciding what software is appropriate to incorporate into their classroom:

1. Does the software mainly consist of drills?
2. Is the software equipped for whole-class projects that involve student planning and problem solving?

3. Can the students work cooperatively, or does each member have a different role?
4. Is it interactive?
5. Does the software include all the information necessary for the students to complete the project in which you are involved?
6. Will the teacher be able to answer questions and solve technical problems that may arise from this program?
7. Is the software able to be previewed BEFORE being bought?

The software that a teacher chooses can intrigue students and also keep them on task. Multimedia Encyclopedias such as Encarta and Groliers enable students to search for virtually any topic quickly and effectively (Allen, 1994).

By providing students access to the internet, we create academic opportunities and are able to let the students interact socially with children all over the world. This interaction acts as a history lesson, language lesson, and an opportunity to redefine attitudes toward government, culture, and society (Copen, 1995).

There is recommended software that serves children with special needs as well as the regular classroom student. (Armstrong, 1995) believes that technology is the key that makes inclusion possible. Johnson believes that there are many features to consider when choosing software for children with special needs:

1. Easy-to- read screens
2. Consistency with menus and objects
3. Instructional choices

4. Graphics
5. Support for inclusion-Is it usable to ALL classroom students therefore ideal for an inclusion setting?
6. Audio/Visual clues
7. Friendly Documentation- Instructions should be available in large print, Braille, recorded form etc... (Johnson, 1995).

Selection of appropriate software will keep students on task and interested. According to Dyrli, networking such as E-Mail can provide many educational benefits such as discussion groups, teacher-to-teacher collaboration, student-to-student conversations, and key pals (Dyrli, 1995). If teachers and administrators support Online connection, the possibilities that students and teachers have are endless. Kinnaman believes that technology can provide teachers with a multi-faceted curriculum resource that encourages students to participate in a meaningful learning experience (Kinnaman, 1995).

WHAT ROLE SHOULD TECHNOLOGY PLAY IN ASSESSMENT?

Technology should play a major role in alternative assessment. It can minimize the labor-intensive task associated with assessment for example, paperwork. It can also be used to evaluate student performances through portfolios (Wiggins, 1993). Computers allow teachers to tap into aspects of students' abilities that other media cannot. Computers can record how students learn with feedback, students' thinking processes, and

their ability to deal with realistic situations and problems (Bruder, 1993).

A teacher can assess a student's performance using a bar code reader on a scoring sheet. By walking around the classroom, a teacher can code in assessments of students' work as it occurs. Teachers can customize bar codes to reflect the learning objectives they have planned for a lesson. Technology can bring in more sophisticated assessments of skills and make it easier to do (Bruder, 1993).

Computer simulations, where students are thrust into real world situations is another way to assess their knowledge. Simulations allow most teachers to see a final product, which is valuable in a performance-based assessment environment (Bruder, 1993).

Through electronic portfolios, students can include word processed documents, scanned images, and audio and video clips. Students can set annual goals and measure their achievement through whatever performance activities are appropriate. When students graduate, we can hand them a CD-ROM showing their accomplishments (Falotico, 1995).

The use of portfolio assessment will help the credibility of the teacher during conferences. Portfolios allow the teacher to demonstrate student performances both oral and written (Pott, 1992). Portfolios can also be presented at an open house at the school and later can be transferred to a disk or video for parents to take home (Felt, 1995).

CHAPTER III

METHODOLOGY

Population

This handbook is designed for elementary school teachers who teach grades kindergarten through fifth, in an urban or rural public school system. Furthermore, it is intended to help those school systems who already have a technology plan implemented into their course of study.

Design

It is in the form of a handbook to provide easy access for teachers and administrators to use as a reference guide to find information and resources on implementing technology to their daily curriculum.

Instrumentation

This handbook will be easily accessible to both teachers and administrators. It will be separated into four main areas by subjects (Language Arts, Math, Social Studies, Science/Health). Within those four areas, teachers will be able to read about software appropriate for students in Kindergarten through fifth grade. These subject areas will include ideas for lessons involving technology that the children will both understand and be challenged by when using.

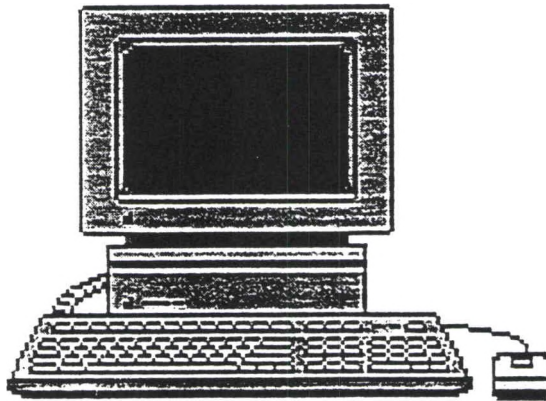
The handbook will also include teacher tips and strategies that will help teachers successfully incorporate technology into their classrooms.

Research was done on how to select the appropriate software and how to go about evaluating it. Colleges and universities around central Ohio were contacted to see if they offered any classes or workshops to help train teachers in the area of technology. Manufacturers were contacted to obtain prices and descriptions of software available for Macintosh computers. By simply using and experimenting with various software, different extensions of curriculum were discovered.

Chapter IV

Handbook

TEACHING STRATEGIES FOR TECHNOLOGY IN THE ELEMENTARY CLASSROOM



by

Kathryn Bruney, Julie Cioca and Debra Laaksonen

FUNDING THROUGH PARTNERSHIPS

Definition of a partnership

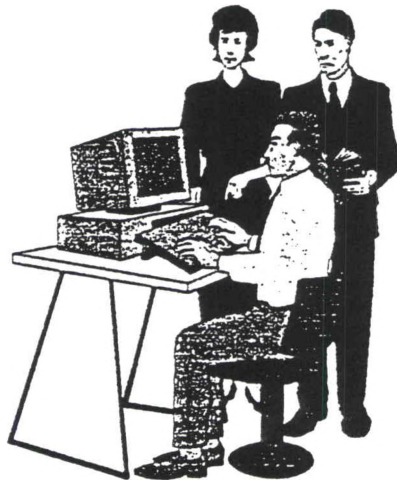
- A partnership between an individual or group that is characterized by mutual cooperation and responsibility as for the achievement of a specific goal. A relationship with a school and a local business.

How to obtain information about a local partnership

- Contact your local Chamber of Commerce to supply the names of organizations that are willing to provide financial assistance or volunteer hours.

Types of partnerships

- Partnerships between schools and local businesses
- Initiated by companies
- Initiated by parents or school personnel approaching businesses



GRANTS

Definition of a grant

- Money that can be awarded to a school district and individual teachers from a variety of institutions, including government, foundations, and corporations to fund a project. Grant topics often include professional development, collaborative efforts, parent involvement, science, math, and technology.

Finding a Funder That Is Right For You

- Find a source that issues grants in your geographic area. Determine if the funder gives the kind of grant you are seeking.
- Some lenders will give "seed money" that will get a program started and then you will not need additional funding.
- Some lenders will give "operating funds" so if you want to hire an additional aide, you will have money to fund that person through the operation. Some will give equipment and software.
- Find a lender with goals in keeping with your need.
- Locating a funder can be done in a variety of ways: contacting school district, visiting your public library, National Education Online, State Department of Education.

Types of grants available:

- Local Professional Block Grant (State Grant)
More than \$20 million has been made available by the State Department of Education to fund local professional development programs. This grant is available to every district on a per-pupil basis. K-12 districts are entitled to an amount equal to \$2.50 per pupil in 1995-1996, but the money does not necessarily have to be spent this school year. It can be spent in combination with a 1996-1997 Block Grant next school year.

For an application, write to:
Ohio Education Association
225 East Broad Street
Columbus, OH 43062
(614) 228-4526

- **Venture Capital Grant** (State Grant)

A Venture Capital Grant is another way that state can assist in funding professional development efforts. Venture Capital Grants amount to \$25,000 for five years to fund a school building-wide renewal and professional development efforts. This grant is based on the following criteria:

- Community readiness
- Integrated strategies
- Systematic plans
- Community involvement
- Focus on learning
- Expanded teacher roles
- Supportive policies and practices

For an application, write to:
Ohio Education Association
225 East Broad Street
Columbus, OH 43062
(614) 228-4526

- **William G. Carr Grant** (Federal Grant)

William Carr was the Executive Director of the National Education Association from 1952-1967. He helped found the World Confederation of Organizations of the Teaching Profession. This grant offers up to \$5,000 to support efforts by NEA members, state affiliates, or local affiliates that contribute to some aspect of international cooperation, global education, or peace.

For an application, write to:
NFIE
1201 16th Street
N.W. Washington, D.C. 20036

- **Hilda Maehling Grant** (Federal Grant)
Hilda Maehling Grants award up to \$5,000 to support efforts by NEA members, state affiliates, or local affiliates to improve professional development, enhance classroom skills and activities, or advance professional association work.

For an application, write to:

NFIE
1201 16th Street
N.W. Washington, D.C. 20036

Directory for federal grants

Grant Search CFDA
Capitol Publications, P.O. Box 1453,
Alexandria, VA 22313-2053
(800) 847-7772

Addition resources to locate grant information

National Education Association
Professional Library, P.O. Box 509
237 Saw Mill Road
West Haven, CT 06516

National Education Association Online - Access the Internet
via America On Line, EWorld, Freenet, etc...

Contact public library and ask for a references for educational grants.

Contact the superintendent's office of local schools in your area.

State Department of Education Service Center

Educational Retrieval Resource
617 Wright Avenue
Terrytown, LA 70056-4037
1-800-891-6354

Education Funding Resources
11265 Canyon Drive
San Jose, CA 5127-1323
1-800-258-8020

Grassroots Fundraising Journal
P.O. Box 11607
Berkeley, CA 94712

National Science Teachers Association
1840 Wilson Boulevard
Arlington, VA 2201-3000

U.S. West Foundation Headquarters
1-800-843-3383

The Ford Foundation
320 East 43 Street
New York, NY 10017
(212) 573-5000

Follett Software Company
391 Corporate Drive
McHenry, IL 60050-7041
1-800-323-3397

C-Span in the Classroom
1995-96 Equipment for Education Grant Program
400 North Capitol Street, NW, Suite 650
Washington, DC 20001

C-Span \$100,000 National Scholarship Competition
400 North Capitol St., NW., Suite 650
Washington, DC 20001

Cisco Systems, Inc.
(408) 526-4226

Apple Computer's Partners in Education (PIE) Grants
1-800-974-2974

The 1996 Guide to Federal Funding for Education
Funding Research Council
4301 N. Fairfax Dr. Suite 875
Arlington, VA 22203-1627
1-800-876-0226

The Step-By-Step Guide for Proposal Writing
Quinlan Publishing Co.
23 Drydock Ave.
Boston, MA 02210-2387
1-800-229-2084

NFIE
1201 16th St., N.W.
Washington, D.C. 20036

Aid for Education, CD Publications
8204 Fenton St. Silver Spring, MD 20910
1-800-666-6380

The Annual Register of Grant Support
Marquis Who's Who Inc.
200 East Ohio St.
Chicago, IL 60611

The Foundation Grants Index, The Foundation Center
79 Fifth Ave.
New York, NY 100031-800-424-9836

Tips for winning a grant

- **Research the interests, goals, and priorities of the funding agency.**
- **Keep your writing clean, focused, and organized.**
- **Be sure your proposal emphasizes the most important areas.**
- **Be specific about outcomes and how you will measure your results.**
- **Be sure your goals and implementation strategies are consistent with one another.**
- **Establish a non-profit group and seek funding through that group. Solve community problems with your proposal.**
- **Be realistic about how much money you need to fund your proposal.**

FUNDRAISING

Definition of fundraising

- Fundraising can be a enjoyable way for the parents, community members and students to take an active role in obtaining money for technology advancement in their school.

Parent - Teacher Association

- Possible Fundraising Ideas:
 - Carnival
 - Silent Auction
 - Soup-n-Salad Dinner
 - Pasta Dinner
 - Penny Drive
 - Gift Certificates to local stores
 - Candy Sale
 - Wrapping Paper Sale
- Anonymous donations from parents and community members

Donations from the public

- Contact your local professional and service organizations:
 - Kiwanis, JayCees, Lions Club, Rotary, Moose, Eagles, Elks, Masons.

Class projects and competitions

- Grade levels can design a fundraising project and compete against each other to see who can raise the most money for the school.
- A grade level can be assigned a month to sponsor a fundraising project of their choice. There can be a school wide competition to see which grade can raise the most money.

OBTAIN COMMUNITY, ADMINISTRATIVE AND TEACHER SUPPORT

Community

- Invite community members to an open house at the school to demonstrate technology.
- Establish a "Key Pals" program with senior citizens where students in the classroom can write to senior citizens in a nursing home via the Internet.
- Invite community members to become technology aides in the school.

Administrative

- Invite administrators and board members to a open house to demonstrate technology.

Teacher

- Form a Technology Committee in your school and devise a mission statement that will include school wide goals for technology.
- Restructure your classroom to make technology an integral part of your everyday curriculum.
- Adjust the teacher and learner role and redefine your destination.
- Invite professionals from your community into your classroom to demonstrate how they use a computer in their daily work.
- Recruit community members to serve as ongoing mentors to students.
- Rethink your expectations of students.
- Attend teacher in-service training and professional growth workshops pertaining to technology.

PARADIGM SHIFT

Definition of paradigm

- An example that serves as a pattern or model.

School reform and redefining the role of technology

- Technology is rapidly changes and becoming more advanced. Technology can be used as part of an effort to reform what and how children learn. The technological tools of the 21st century must be coupled with new visions about the work of teachers and students. Administrators and teachers need to make technology a part of their everyday learning. Teachers will need to learn how to integrate technology into the curriculum.

What can prevent faculty from adapting

- Fear of change
- Fear of time commitment
- Fear of appearing incompetent
- Fear of techno lingo
- Fear of techno failure
- Fear of not knowing where to start
- Fear of making bad choices
- Fear of having to move backward to go forward
- Fear of rejection or reprisals

Tips to help shift perspective

- Be realistic
- Decide who is boss in the classroom
- Ease into the technological flow
- Become familiar with techno-culture
- Play
- Network with others
- Reverse roles

Strategies to smooth the way

- Play - make time to experiment with the computer. Faculty members need to give themselves permission to try, fail and try again.
- Network with others - collaborate with faculty members and administrators.

- **Reverse roles - involve students in conquering the content in question. Shift relationship toward cooperation and egalitarianism, enhancing learning.**



Professional Workshops To Help Teachers In Implementing Technology

This section is designed to help you, the teacher(s) who are interested in taking workshops to improve your understanding and use of using computer technology in your classroom.

Teachers can receive adequate training that will assist them in implementing technology in the classroom by:

Teacher Inservices and Professional Workshops:

AECT 1996 National Convention/InCITE '96 Exposition
Indianapolis, Indiana
Phone #: (202) 347-7834
Fax: (202) 347-7839

Florida Education Technology Conference (FECT '96)
Orlando, Florida
Phone #: (904)385-1790

Northwest Council for Computer Education (NCCE'96)
Portland, Oregon
Phone#: (541) 346-3537
Fax: (541) 346-3509

National Education Computing Conference (NECC '96)
Minneapolis, Minnesota
Phone#: (541) 346-2834
Fax: (341) 346-5890

**The Fifth International Conference on Telecommunications in
Education (TEL.Ed'96)**
Tampa, Florida
Phone#: (541) 346-2411

International Society for Technology in Education (Tel.Ed'96)
1787 Agate Street
Eugene, OR 97403-1923 USA
Phone#: (541) 346-2411

Collegial Support and Cooperation

Capitol University

Columbus, OH 43209-2394

Registrar (614) 236-6150

Admissions (614) 236-6101 or 1-800-289-6289

Education

Educ. 475 Teaching Computer Science in Secondary
Schools -3

Computer Science

Comp. Science 104 Intro. To Business Computing -3
105 Intro. To Computer Science -4

Columbus State

550 East Spring St.

Columbus, OH 43215

Admissions (614)227-2453 or 1-800-621-6407

Computer Programming Technology

CPT 100 Computer Literacy I (DOS) 2-2-3

CPT 101 Computer Literacy I (Windows) 2-2-3

University Of Dayton

Dayton, OH 45469-1611

Admissions (513)229-4411

Computer Science

CPS 107 Computer and Society -3 sem. hr.

CPS 111 Introduction to Personal Computers -3 sem. hr.

Secondary Education (EDS)

School of Education

EDT 451 Computers in Education -3 sem hr.

EDT 461 Advanced Computers in Education - 3 sem. hr.

Teacher Education

EDT 462 Methods- Computers in Education -3 sem. hr.

Ohio Dominican College

1216 Sunbury Rd.
Columbus, OH 43219-2099

Admissions (614) 251-4500 or 1-800-955-OHIO
Fax (614) 252-0776

Education

IS 104 Microcomputer Applications

Library and Information Services

IS 103 Computer Terminology -2
ED/LS 261 Microcomputers in Schools -2

University of Findlay

1000 North Main St.
Findlay, OH 45840-3695

(419) 424-4540 or 1-800-548-0932

Admissions 1-800-548-0932
Cont. Educ. 1-800-472-9502

Computer Science

CSCI 307 Introduction to Computers for Educators -2 sem.
hr.

CSCI 308 Computers for Elementary Educators -2 sem. hr.

CSCI 309 Computers for Secondary Educators -2 sem. hr.

Franklin University

201 South Grant Ave.
Columbus, OH 43215-5399

(614) 341-6327
Registrar (614) 341-6242

Technology Associate of Science

COM 110 Computer Science I 4hr.

Heidelberg

310 East Market St.
Tiffin, OH 44883-2462

Admissions 448-2330

Education

EDU 410 Microcomputer Software for Teachers -2 sem. hr.

Hiram College

P.O.Box 67
Hiram, OH 44234

(216) 569-3211
Fax: (216) 569-5290

Education

- 375 Technology for Teachers -1hr.
- 376 Technology in Teacher Reading and Language Arts -1 hr.
- 377 Technology in Teacher Math, Science, & Social Studies- 1hr.
- 378 Technology of Telecommunications in Teaching -1hr.
- 379 Technology of Hyper Card in Teaching 1 hr.

Kent State University

P.O.Box 5190
Kent, OH 44242-0001

Computer Science

- CS 10061 Introduction to Computer Science -3 sem. hr.

Elementary Education

- ELED Teaching With Microcomputers: Elem. School -3 sem. hr.

Ohio State University

3rd Floor
1800 Cannon Dr.
Columbus, OH 43210-1200

Admissions (614) 292-3980

Computer and Information Science

- 548 Computer Science for High School Teachers -U.G. 5

Instructional Design and Technology

- 788 Computer Concepts and Skills for Educators
- 823 The Functions of the Computer in the Classroom G. 3
- 370 Computers in the Classroom: An Introduction U.G. 3
- 676 Planning & Preparing Teacher-Made Education Media U.G.3
- 677 Educational Telecommunications U.G. 3
- 791 Media and Technology in Education U.G. 3

Ohio University

Athens, OH 45701-2979

Admissions (614) 593-4100

Registrar (614) 593-4191

Educational Media

EDM 201 Use of Library Resource I- 3

EDM 332 Microcomputer: Applications in Education -4

Special Education

EDSP 355 Microcomputers in Special Education -4

Otterbein College

Westerville, OH 43081

Admissions (614) 823-1500 or 1-800-488-8144

Mathematics and Computer Science

Math 155 Mathematics for the Computer Age -3 hr.

Education

EDUC 372 Math/Computer Science Field Experience

EDUC 372.1 Methods Seminar

EDUC 575 Present & Future Technologies for the
Classroom -3

Ohio Wesleyan University

Delaware, OH 43015

(614) 369-4431

Admissions Extension 3020

Registrar Extension 3200

Education

200.1 (20) Instructional Technology

Wittenberg University

Ward St. at North Wittenberg Ave.

P.O. Box 720

Springfield, OH 45501

(513) 327-6314

None as of 4/96

Wright State

Dayton, OH 45435
Admissions 873-5700
Registrar 873-5588

Educational Technology

EDT 485-3 Computers for Educators

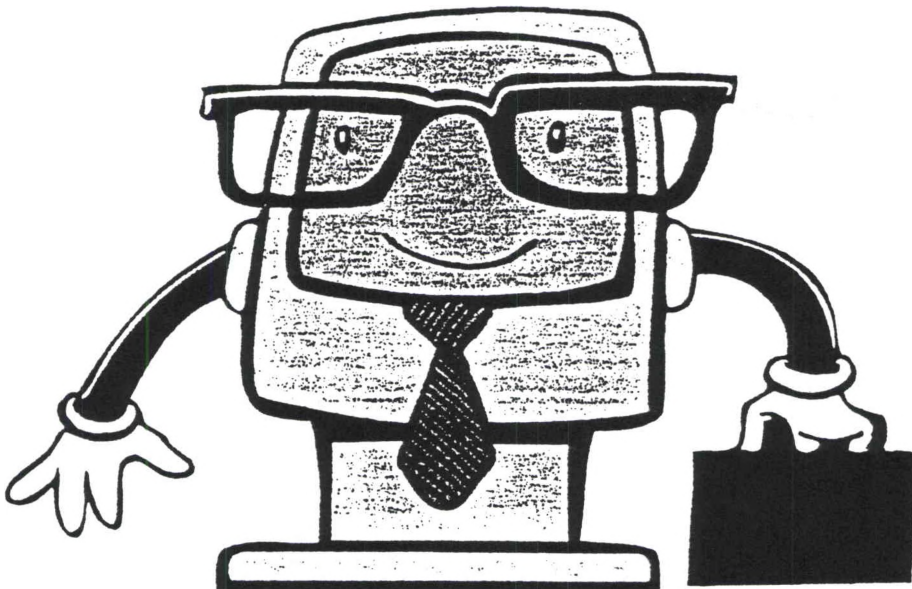
EDT 470-1 to 6 Workshop in Educational Technology &

Vocational Education

EDT 380-3 Classroom Application's of Computers

Education

ED 450-3 Computer Science: Curriculum & Materials



HOW DO TEACHERS CHOOSE AND INTEGRATE APPROPRIATE SOFTWARE?

It is important for educators to become familiar with software they plan on integrating into the curriculum. There are many ways in which you can gain exposure to software. This section is designed to provide you with information on how to accomplish this.

Form committees to align software and curriculum

- Organize a school Technology Committee by asking for volunteers representing each grade level.
- Grade level representatives serve as a mentor for the rest of the teachers.
- The representatives are responsible for gathering information about the needs of the staff and reporting back to the technology committee.
- Grade levels can also meet in small groups to preview software and explore the various programs.

How to preview software from manufacturers

- Contact local software organizations

Cleveland State University
Cleveland, Ohio
(216) 687-9383

Ohio Dept. of Education
Columbus, Ohio
(614) 752-8633

SOITA Learning Center
Franklin, Ohio
(502) 746-6333

**Channels 45/49 Computer Resource Center
Kent, Ohio
(216) 677-4549**

Exposure through professional conferences

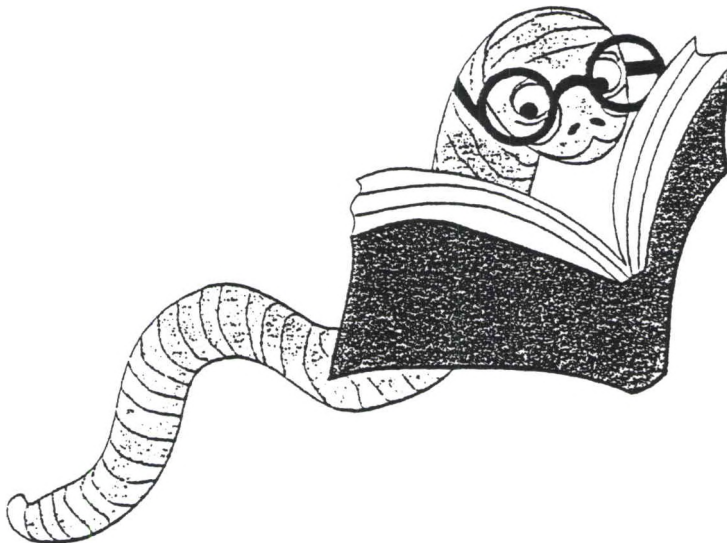
- **International Conferences on Computers in Education**
P.O. Box 2966
Charlottesville, VA 22902
804-973-3987
- **Technology Student Association**
1914 Association Drive
Reston, VA 22091
703-860-9000
- **EDUCOM**
1112 16th St., NW, Suite 600
Washington D.C. 20036
202-872-4200
- **Society for Applied Learning Technology**
50 Culpeper St.
Warrenton, VA 22186
- **Association for the Advancement of Computing in Education (AACE)**
P.O.Box 2966
Charlottesville, VA 22902
804-973-3987
- **Association for Educational Communications and Technology (AECT)**
1025 Vermont Ave., NW, Suite 820
Washington D.C. 20005-3516
202-347-7834
- **Association for the Development of Computer Based Instructional Systems (ADCIS)**
International Headquarters
1601 W. Fifth Ave., Suite 111
Columbus, Ohio 43212

- **The Great Technology Get Together**
MECC/TIES
Teaching and Learning Department, Suite 250
2665 Long Lake Rd.
St. Paul, MN 55113
- **Institute for Educational Development**
P.O.Box 718
Medina, WA 98039-0718
- **T.E.C. (The Educational Centre)**
P.O.Box 3168
Torrance, CA 90510-3168
- **Bureau of Education and Research**
915 118th Ave., SE
Bellevue, WA 98009-9668
- **COSERRC**
470 Glenmont Ave.
Columbus, Ohio 43214-3292
614-262-4545
- **International Society for Technology in Education**
1787 Agate St.
Eugene, OR 97403-1923

Examine professional journals and magazines

- **Educational Technology**
720 Palisade Ave.
Englewood Cliffs, NJ 07632
201-871-4007
- **Electronic Learning**
902 Sylvan Ave.
Englewood Cliffs, NJ 07632
212-994-7700
- **Teaching and Computers**
Scholastic Inc.
730 Broadway
New York, NY 10003
212-505-3000

- **Technology & Learning**
Peter Li Inc.
19 Davis Dr.
Bellmont, CA 94002
415-592-7810
- **T.H.E. Journal**
Information Synergy
2626 Pullman
Santa Ana, CA 92705
714-261-0366



QUICK REFERENCE

FOR MACINTOSH SOFTWARE K-5

This section serves as reference for Macintosh software. Most software companies have the software available in Macintosh and IBM for your convenience.

I. Kindergarten-First Grade

Language Arts

Bailey's Bookhouse

Introduces students to Language Arts. They can experiment with rhymes and see how different words change the meaning of a sentence.

Manufacturer: Edmark
Phone: 1-800-320-8378
Price: \$36.99

Playroom

Kids become familiar with the alphabet, beginning reading skills, basic counting, adding and subtracting, and telling time.

Manufacturer: Broderbund
Phone: 1-800-521-6263
Price: \$39.95

Reader Rabbit

Rich in sound and visuals that is interactive and will encourage students to love reading. The

Manufacturer: Learning Company
Phone: 1-800-852-2255
Price: \$89.00

Kids Time Deluxe

The students will learn letters, practice counting skills, make shapes, do logic exercises, and music composition.

Manufacturer: Great Wave
Phone: 1-408-438-1990
Price: \$49.95

Math

Kidsmath

A beginning math program that maintains and adjusts the skill levels of student. The students set up and solve equations.

Manufacturer: Great Wave

Phone: 1-408-438-1990

Price: \$49.95

Thinkin' Things

This teaches basic skills such as matching patterns, colors and shapes. The students play drums and xylophones, learning to distinguish between patterns, rhythm and sounds.

Manufacturer: Edmark

Phone: 1-800-320- 8378

Price: \$44.99

Science/Social Studies/Health

Dinosaurs Are Forever

This is a deluxe electronic coloring book which allows students to color and learn about 26 different dinosaurs.

Manufacturer: Polarware

Phone: 1-800-777-3642

Price: \$8.00

General

The Backyard

This award-winning software will teach pre-reading skills, math, strategic thinking, sentence structure, and music composition. The student will learn about animals, mapping, music, plants, and facial expressions.

Manufacturer: Broderbund

Phone: 1-800-521-6263

Price: \$42.95

II. Second Grade and Third Grade

Language Arts

Bailey's Book House

Introduces students to Language Arts. They can experiment with rhymes and see how different words change the meaning of a sentence.

Manufacturer: Edmark
Phone: 1-800-320-8378
Price: \$36.99

Kid Pix 2

A paint program for students using graphics and special effects.

Manufacturer: Broderbund
Phone: 1-800-927-3936
Price: \$49.95

Kid Works 2

Students can write, illustrate, and listen to their own original stories. It contains word processing and painting tools in the program.

Manufacturer: Davidson & Associates
Phone: 1-800-545-7677
Price: \$64.95

Spellbound

Spelling skills are used through activities and puzzles. This program builds spelling and thinking skills.

Manufacturer: The Learning Company
Phone: 1-800-927-3936
Price: \$59.95

Math

Clock Shop

Students learn to read and tell time. Problems range from simple hour identifications to one-minute intervals.

Manufacturer: Nordic
Phone: 1-800-965-1400
Price: \$44.95

Math Blaster

Students will learn basic math concepts: addition, subtraction, multiplication, and division equations. It contains one to three digit numbers, negative numbers and more.

Manufacturer: Davidson & Associates
Phone: 1-800-927-3936
Price: \$57.95

Math Rabbit

Students explore basic number concepts and develop skills in counting, adding, subtracting, and more.

Manufacturer: The Learning Company
Phone: 1-614-965-1400
Price: \$59.95

Money Challenge

A version of Tic Tac Toe. Students will earn money by answering questions, which they use to buy squares on the board.

Manufacturer: Gamco
Phone: 1-614-965-1400
Price: \$45.95

The Cruncher

Students will quickly and easily master spreadsheet fundamentals. They will learn and apply math concepts.

Manufacturer: Davison and Associates
Phone: 1-800-965-1400
Price: \$69.95

Science/Social Studies/Health

Oregon Trail

A simulated journey back to 1848. Become a pioneer on your way to a new life in the Oregon Territory. Great for improving problem-solving skills.

Manufacturer: Mecc
Phone: 1-800-350-4080
Price: \$29.95

Super Munchers

Learn fascinating facts about animals, sports, famous Americans and more.

Manufacturer:

Phone: 1-800-927-3936

Price: \$48.00

General

Kidkeys

Animated characters that help students build key boarding skills while practicing alphabetical skills.

Manufacturer: Davidson & Associates

Phone 1-800-927-3936

Price: \$43.95

The Treehouse

The students will make discoveries about music, science, math, and language. They will learn important concepts and facts.

Manufacturer: Broderbund

Phone: 1-415-382-4700

Price: \$42.95

III. Fourth Grade and Fifth Grade

Language Arts

Microsoft Works

Word processing, data base management, charting and illustrations are included in this software.

Manufacturer: Microsoft Corp.

Phone: 1-800-777-3642

Price: \$15.00

The Writing Center

This combines full-feature word processing and desktop publishing. This is a great tool for creating, classroom newsletters, parent letters, signs, certificates and more.

Manufacturer: The Learning Company

Phone: 1-800-965-1400

Price: \$97.95

Clairsworks

Word processing, data base, graphics, spreadsheet, charting and communication are all integrated into this software.

Manufacturer: Clairs
Phone: 1-800-965-1400
Price: \$73.95

Hyperstudio

The students can bring graphics, sound and text together in an exciting way. This multimedia software gives students with different learning styles an opportunity to express themselves.

Manufacturer: Roger Wagner Publishing Inc.
Phone: 1-619-442-0522
Price: \$124.95

Print Shop Deluxe

Students can use graphics and text to produce: personalized greeting cards, signs, stationery, calendars, banners, and more.

Manufacturer: Broderbund
Phone: 1-800-965-1400
Price: \$63.95

Spellbound

Spelling skills are used through activities and puzzles. This program builds spelling and thinking skills.

Manufacturer: The Learning Company
Phone: 1-800-927-3936
Price: \$59.95

Math

Dino Park Tycoon

Students manage a roadside attraction featuring dinosaurs. Develops skills such as money management, estimation and problem solving.

Manufacturer: MECC
Phone: 1-614-965-1400
Price: \$48.00

Tesselmania

Visually explore geometry concepts and enrich the art curriculum.

Manufacturer: MECC
Phone: 1-614-965-1400
Price: \$47.95

Building Perspective

This challenges students to view a group of colored buildings from the ground level and then predict how these buildings are viewed from above. This allows students to use problem solving skills such as sequencing, patterns, information gathering and many more!

Manufacturer: Sunburst Communications
Phone: 1-800-321-7511
Price: \$59.95

The Factory

This software helps students develop problem-solving skills. Memory, cognitive skills, strategies and creativity are all utilized with this program.

Manufacturer: Sunburst Communications
Phone: 1-800-321-7511
Price: \$79.95

Hot Dog Stand

This randomly generates mathematics and practical skills. The students will buy, price and sell quantities of food.

Manufacturer: Sunburst Communications
Phone: 1-800-321-7511
Price: \$59.95

Math Blasters

The students will learn basic math skills including estimation and number patterns and many more.

Manufacturer: Davison and Associates
Phone: 1-800-965-1400
Price: \$57.95.

Science/Social Studies/ Health

Oregon Trail

A simulated journey back to 1848. Become a pioneer on your way to a new life in the Oregon Territory. Great for improving problem-solving skills.

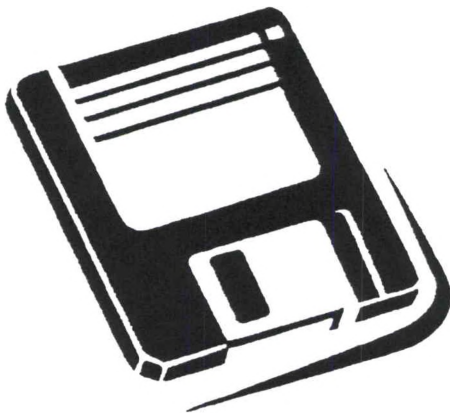
**Manufacturer: MECC
Phone: 1-800-350-4080
Price: \$29.95**

Where in the World is Carmen Sandiego?

The students will track down a secret agent. Along the way, explore the world's great cities and cultures, following clues on history, the arts, language, currency, and geography.

**Manufacturer: Broderbund
Phone: 1-614-965-1400
Price: \$56.95**

PRICES MAY VARY ACCORDING TO MANUFACTURERS



CHAPTER V

SUMMARY

As educators, the importance of continual professional growth is crucial. Computer literacy is becoming necessary so teachers can keep up with the students who have access to computers at home. In order to prepare the students for the work force in the 21st century, it is vital that we maintain and expand their knowledge and experiences with technology. By incorporating this into our curriculum, we create a exciting and positive relationship between learning and technology.

There is a need for schools to transform from a traditional setting to a computer-literate environment. This transition should take two to three years and involve support of teachers, administrators, parents and the community. It will also take significant funds for teacher training. Teachers will need to obtain professional support that will assist them in implementing technology into their curriculum, which includes choosing appropriate software for their students, and having technology play a role in assessment.

Support from the staff and community can be obtained in a variety of ways. Monies can be obtained in form of partnerships with local businesses and organizations. State and Federal grants are available to acquire funds to assist in your transition, as well as outside resources (State Department of Education and Apple Computer Partners in Education). Parental support is necessary and can be a significant way to raise money. The Parent Teacher Association can hold sales such as candy sales.

They can also raise funds through dinners and carnivals and invite the public. Donations from the public could also be welcomed.

Since teachers will be implementing computer technology into their curriculum, they need to be exposed to the the most recent information about technology which can be obtained through professional workshops and inservices offered by companies such as the Northwest Council for Computer Education. Funds need to be available for teachers and administrators to attend these workshops and come back to their schools to hold inservices to share the information with the staff.

Local colleges are a convenient way to achieve professional growth though classes they offer on Computer Science, Computer terminology, Educational Communications and Educational Technology. These are available in both undergraduate and graduate programs as well as offering Continuing Education Units (CEU's) for individual classes.

Though teacher training, educators acquire knowledge on how to choose appropriate software for their students. Other ways to achieve this is to form committees that align software and the curriculum such as a Technology Committee that includes a representative from each grade level that acts as a mentor for their grade. This committee can also preview software and programs that are appropriate for their team. Another way to familiarize yourself with software is to preview it for manufacturers such as the Ohio Department of Education. and SOITA Learning Center. Teachers can be exposed to software though professional workshops and conferences and professional journals and magazines.

Educational Technology, Electronic Learning and Technology and Learning are just a few.

Teachers are able to assess student's thinking process, problem-solving capabilities and application abilities when using technology in the classroom such as simulations and multimedia presentations.

CONCLUSIONS

There are many important issues that need to be addressed when technology is implemented in the curriculum. In the course of this project, we have discovered many techniques that can ease the transition to a computer literate environment.

- 1. Administrative, staff, parent and community support is necessary for a smooth transition.**
- 2. Teacher training is essential in order to prepare the staff for the experiences they will encounter with their students.**
- 3. Teacher training will also provide staff with the knowledge to select appropriate software for their students.**
- 4. Teachers can better assess student's achievement when using multimedia software. Student's thought processes become more evident and observable.**

RECOMMENDATIONS

We recommend that the following issues be addressed in order to assist a school in changing from a traditional setting to a computer-literate environment.

- 1. It is essential that a paradigm shift occur with the school and the community as to redefine the role of technology in education.**
- 2. Everyone must become familiar with technoculture that is becoming evident in our society and be willing to adjust to these changes.**
- 3. Included is a Quick-Reference guide to appropriate software for grades K-5, which includes manufacturer contact information and prices. Information is included that enables you to contact local colleges and universities. The names and addresses of companies that offer conferences and workshops are included as well.**
- 4. As you begin the transition to a computer literate environment, you will need to invest time, energy and money into obtaining support from administrators, parents and the community.**
- 5. Teachers need to become computer literate through access to profession conferences, journal and magazines and college classes.**
- 6. We also recommend that at least one copy of this handbook is made available to each grade level in the building.**

- 7. We also feel that parents should have access to it in order to understand how important their financial support and cooperation is to their child's education.**

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